VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Minor, Municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9 VAC 25-260. The proposed discharge will result from the operation of a sewage treatment plant serving an aircraft controls manufacturer. This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address:
   Avionics Specialties, Inc.
   3367 Earlysville Road
   Earlysville, Virginia 22936
   Location: 3367 Earlysville Road

2. Permit No. VA0028398; Expiration Date: June 30, 2012

3. Owner: Avionics Specialties, Inc.
   Contact Name: Randall Deane
   Title: Facility Manager
   Telephone No: 434.996.6250

4. Description of Treatment Works Treating Domestic Sewage:
   Total Number of Outfalls: 1

   The Avionics Specialties WWTF treats sewage wastewater from an aircraft controls manufacturer. Avionics Specialties closed in 2007. The permittee wants to retain the VPDES Permit. Approximately 2,000 gallons of well water is run through the pipes every 2 weeks in order to collect representative well water samples for the Department of Health. The well water is directed to the Avionics Specialties WWTF. The water typically evaporates before there is a discharge from Outfall 001. If there is a discharge through Outfall 001, the permittee collects samples in accordance with the permit. The treatment units comprising the WWTF are shown in the schematics included in the permit reissuance application.

   Average Discharge Flow = 0.0009 MGD (from application)
   Design Average Flow = 0.005 MGD

5. Application Complete Date: December 16, 2011

   Permit Writer: Bev Carver Date: January 5, 2012
   Reviewed By: Dawn Jeffries Date: January 9, 2012

   Public Comment Period: March 2, 2012 to April 1, 2012

6. Receiving Stream Name: Naked Creek, U.T.
   River Mile: 0.68
   Use Impairment: No
   Special Standards: PWS, NEW-3
   Tidal Waters: No
   Watershed Name: VAV –H26R South Fork Rivanna River/Ivy Creek
   Basin: James (Middle); Subbasin: N/A
   Section: 10j; Class: III

7. Operator License Requirements per 9 VAC 25-31-200.C: Class IV

8. Reliability Class per 9 VAC 25-790: Class II (assigned April 12, 1982)

9. Permit Characterization:
   ☑ Private ☐ Federal ☐ State ☐ POTW ☐ PVOTW
   ☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

10. Discharge Location Description and Receiving Waters Information: Appendix A

11. Antidegradation (AD) Review & Comments per 9 VAC 25-260-30:
    Tier Designation: Naked Creek, U.T.: Tier 1

    The State Water Control Board's WQS include an AD policy. All state surface waters are provided one of three levels of AD protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 waters have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 waters are exceptional waters and are so designated by regulatory amendment. The AD policy prohibits new or expanded discharges into exceptional waters.

    The AD review begins with a Tier determination. Naked Creek, U.T. downstream of the facility discharge location is determined to be Tier 1. All of the streams in the Naked Creek watershed are shown as intermittent on the USGS Earlysville Quadrangle topographic map. Intermittent streams are classified as Tier 1. AD baselines are not calculated for Tier 1 waters.

12. Site Inspection: Performed by Bev Carver on November 3, 2011

13. Effluent Screening and Effluent Limitations: Appendix B

14. Effluent toxicity testing requirements included per 9 VAC 25-31-220.D: ☐Yes ☑ No

    If "No," check one:
    ☑ Municipal: This facility does not have a design flow $\geq$ 1.0 MGD, has no Significant Industrial Users (SIUs) or Categorical Industrial Users (CIUs), and is not deemed to have the potential to cause or contribute to instream toxicity.
    ☐ Industrial: This facility's SIC Code(s) and activities contributing wastewater do not fall within the categories for which aquatic toxicity monitoring is required, the facility does not have an IWC = 33%, and the discharge is not deemed to have the potential to cause or contribute to instream toxicity.

15. Management of sewage sludge: Sludge is hauled to the Moores Creek Regional STP for further treatment and disposal.

16. Bases for Special Conditions: Appendix C

17. Material Storage per 9 VAC 25-31-280.B.2: This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

18. Antibacksliding Review per 9 VAC 25-31-220.L: This permit complies with the antibacksliding provisions of the VPDES Permit Regulation.

19. Impaired Use Status Evaluation per 9 VAC 25-31-220.D: The Rivanna River Sediment TMDL was approved on June 11, 2008. Avionics Specialties was assigned a Sediment Wasteload Allocation (WLA) of 183 lbs/year which is based on a design flow of 0.005 MGD and a TSS concentration of 12 mg/L. The Rivanna River Bacteria TMDL was approved on January 5, 2009. Avionics Specialties was assigned an E. coli WLA of 8.69×10^9 cfu/yr which is based on a design flow of 0.005 MGD and an E. coli concentration of 126 cfu/100 mL.

20. Regulation of Users per 9 VAC 25-31-280.B.9: N/A – There are no industrial users contributing to the treatment works.

21. Storm Water Management per 9 VAC 25-31-120: Application Required? ☐ Yes ☑ No

22. Compliance Schedule per 9 VAC 25-31-250: There are no compliance schedules included in the reissued permit.

23. Variances/Alternative Limits or Conditions per 9 VAC 25-31-280.B, 100.J, 100.P, and 100.M: None

24. Financial Assurance Applicability per 9 VAC 25: N/A – This facility does not serve private residences.

25. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☑ No

26. Nutrient Trading Regulation per 9 VAC 25-820:
General Permit Required: ☐ Yes ☑ No

27. Threatened and Endangered (T&E) Species Screening per 9 VAC 25-260-20 B.8: Because this is not an issuance or reissuance that allows increased discharge flows nor was review requested by DCR or DGIF, T&E screening is not required.

28. Public Notice Information per 9 VAC 25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Bev Carver at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7805, Beverley.carver@deq.virginia.gov.

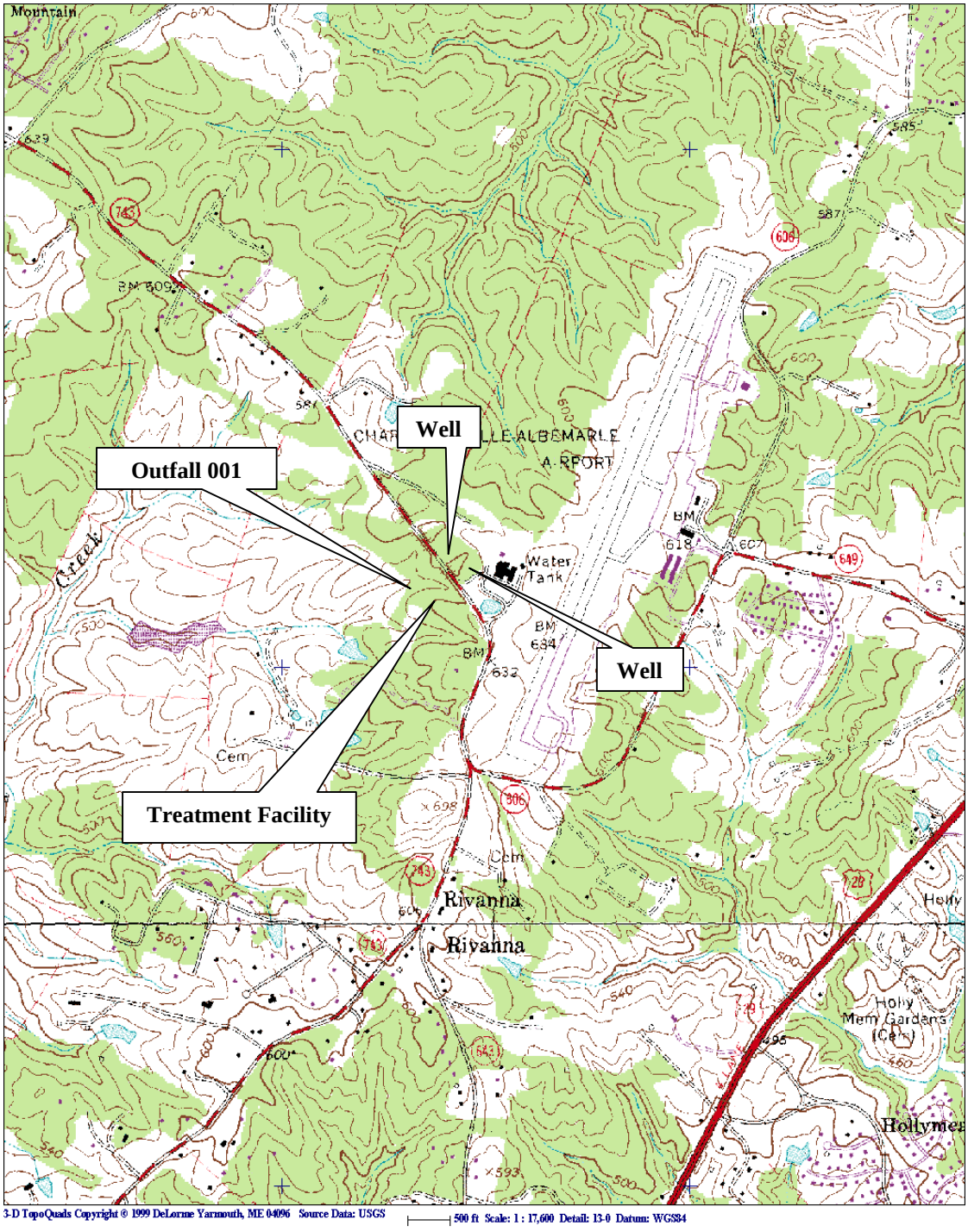
    Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

29. Historical Record: VPDES Permit No. VA0028398 was issued on August 1, 1975 with a design flow of 0.005 MGD. The manufacturing facility closed in 2007.

APPENDIX A

DISCHARGE LOCATION AND RECEIVING WATERS INFORMATION

Avionics Specialties, Inc. discharges to Naked Creek, U.T. in Albemarle County. There is a small impoundment (not shown on USGS map) approximately 0.5 miles downstream of Outfall 001. Naked Creek, U.T. joins Naked Creek which then flows into the South Fork Rivanna Reservoir approximately 2.5 miles downstream of the discharge. The topographical map below shows the location of the treatment facility, Outfall 001 and two onsite wells.



PLANNING INFORMATION

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the Water Quality Assessment TMDL Review table and corresponding map below.

WATER QUALITY ASSESSMENTS REVIEW
MIDDLE JAMES RIVER BASIN
12/19/2011

IMPAIRED SEGMENTS

SEGMENT ID	STREAM	SEGMENT START	SEGMENT END	SEGMENT LENGTH	PARAMETER
H23R-03-BAC	Mechums River	10.45	0.00	10.45	E-coli
H25R-01-BAC	Buck Mountain Creek	17.15	0.00	17.15	E-coli
H26R-03-BEN	Ivy Creek	11.41	0.00	11.41	Benthic
H26R-04-BEN	South Fork Rivanna River	9.92	0.00	9.92	Benthic
H26R-05-BEN	Pow ell Creek	3.38	0.00	3.38	Benthic
H26R-06-BEN	Naked Creek	2.26	0.00	2.26	Benthic
H26R-07-BEN	South Fork Rivanna River X-trib	2.7	0.00	2.7	Benthic

PERMITS

PERMIT	FACILITY	STREAM	RIVER MILE	LAT	LONG	WBID
VA0028398	**Avionics Specialties, Inc.**	**Naked Creek X-Trib**	**0.68**	**380804**	**0782754**	**VAV-H26R**
VA0027065	Cooper Industries	S.F. Rivanna River X Trib	1.25	380816	0782937	VAV-H26R

MONITORING STATIONS

STREAM	NAME	RIVER MILE	RECORD	LAT	LONG
Buck Mountain Creek	2-BKM002.01	2.01	07/01/93	380916	0783220
Ivy Creek	2-IVC000.02	0.02	07/01/93	380541	0782922
Mechums River	2-MCM005.12	5.12	05/06/70	380609	0783536
Moormans River	2-MNR000.39	0.39	070/1/91	380826	0783320
S.F. Rivanna Reserv	2-RRS003.59	3.59	4/10/03	380616	782810
S.F. Rivanna Reserv	2-RRS005.62	5.62	4/10/03	380547	782910
S.F. Rivanna River	2-RRS003.12	3.12	12/13/79	380603	0782741
Wards Creek	2-WDC002.90	2.9	4/26/04	380901	783514
Buck Mountain Creek	2-BKM004.79	4.79	5/23/05	381052	0783160
S.F. Rivanna River	2-RRS010.30	10.3	8/29/01	380749	783156

PUBLIC WATER SUPPLY INTAKES

OWNER	STREAM	RIVER MILE
SOUTH RIVANNA W	SOUTH FORK RIVANNA RESERV	3.47

WATER QUALITY MANAGEMENT PLANNING REGULATION

Is this discharge addressed in the WQMP regulation? **No**

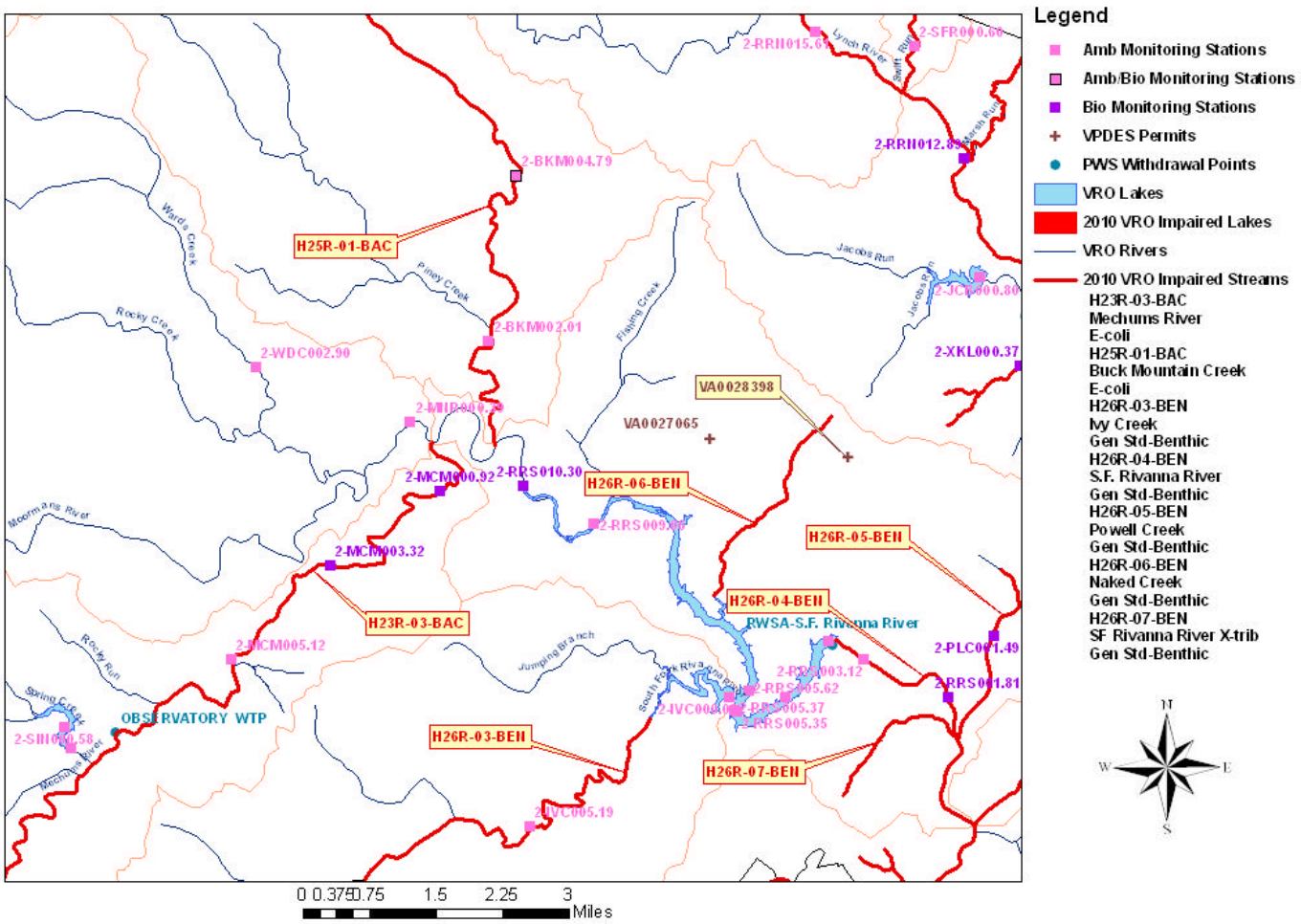
If Yes, what effluent limitations or restrictions does the WQMP regulation impose on this discharge?

PARAMETER	ALLOCATION

WATERSHED NAME

VAV-H26R South Fork Rivanna River/Ivy Creek

Avionics Specialties - Water Quality Assessments Review
December 19, 2011



FLOW FREQUENCY DETERMINATION

MEMORANDUM
DEPARTMENT OF ENVIRONMENTAL QUALITY
VALLEY REGIONAL OFFICE

4411 Early Road – P.O. Box 3000 Harrisonburg, VA 22801

SUBJECT: Flow Frequency Determination
Avionics Specialties, Inc. – VPDES Permit No. VA0028398, Albemarle County

TO: File

FROM: Bev Carver

DATE: December 16, 2011

There is no change since the last flow frequency determination from Eric Aschenbach dated March 22, 2007. The subject facility discharges to a dry ditch, which drains to an intermittent segment of Naked Creek near Earlysville, Virginia. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit reissuance.

The flow frequencies for the receiving stream were determined by inspection of the USGS Earlysville Quadrangle topographic map. The map depicts the receiving stream as a dry ditch. The flow frequencies for dry ditches are 0.0 cfs for 1Q30, 1Q10, 7Q10, 30Q10, 30Q5, high flow 1Q10, high flow 7Q10, high flow 30Q10, harmonic mean, and annual average.

Reviewer: DMJ Date: 12/19/11

EFFLUENT/STREAM MIXING EVALUATION

Because there is no stream flow at the discharge point, mixing zone analyses are not required.

APPENDIX B

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS

A comparison of technology and water quality-based limits was performed and the most stringent limits were selected, as summarized in the table below.

Outfall 001 **Final Limits** **Design Flow: 0.005 MGD**

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		1/Day	Estimate
---	---	Monthly Average		Weekly Average		---	---
BOD_5	3,4,7	12 mg/L	0.23 kg/d	18 mg/L	0.34 kg/d	1/Month	Grab
TSS	5,7	12 mg/L	0.23 kg/d	18 mg/L	0.34 kg/d	1/Month	Grab
Ammonia-N (May-Oct)(mg/L)	3,8	2.1		2.1		1/Month	Grab
Ammonia-N (Nov-Apr)(mg/L)	3,8	4.3		4.3		1/Month	Grab
Effluent Chlorine (TRC)(mg/L)*	3	0.0080		0.0098		1/Day	Grab
E. coli (N/100 mL) (geometric mean)	3,6	126		NA		4/Month 10 am to 4 pm	Grab
---	---	Minimum		Maximum		---	---
pH (S.U.)	3	6.0		9.0		1/Day	Grab
Dissolved Oxygen (mg/L)	3,7	6.0		NA		1/Day	Grab
Contact Chlorine (TRC)(mg/L)*	3,4	1.0		NA		1/Day	Grab

NL = No Limitation, monitoring required *NA = Not Applicable*

4/Month = 4 samples taken monthly, with at least 1 sample taken each calendar week

* = *Applicable only when chlorination is used for disinfection*

BASIS DESCRIPTIONS

1. *VPDES Permit Regulation (9 VAC 25-31)*
2. *Federal Effluent Requirements (Secondary Treatment Regulation - 40CFR133)*
3. *Water Quality Standards (9 VAC 25-260)*
4. *Best Professional Judgment (BPJ)*
5. *Rivanna River Sediment TMDL approved 06.11.08*
6. *Rivanna River Bacteria TMDL approved 01.05.09*
7. *DEQ Memo dated 02.07.92 addressing BOD_5, TSS and DO Limitations*
8. *Antibacksliding*

LIMITING FACTORS – OVERVIEW:
The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (WQMP) (9 VAC 25-720)	
A. TMDL limits	**E. coli, TSS**
B. Non-TMDL WLAs	**None**
C. CBP (TN & TP) WLAs	**None**
Federal Effluent Guidelines	**BOD_5, TSS, pH**
BPJ/Agency Guidance limits	**BOD_5, TSS, DO, TRC (contact)**
Water Quality-based Limits - numeric	**BOD_5, DO, TRC (effluent), E. coli, pH, Ammonia-N**
Water Quality-based Limits - narrative	**None**
Technology-based Limits (9 VAC 25-40-70)	**None**
Whole Effluent Toxicity (WET)	**None**
Storm Water Limits	**N/A**

EVALUATION OF THE EFFLUENT – CONVENTIONAL POLLUTANTS:
A site inspection was performed on April 23, 2007, during which Naked Creek, U.T. below Outfall 001 was observed. An impoundment was noted approximately 200 feet downstream of the discharge, with an additional impoundment observed approximately 0.5 miles further downstream.

The BOD_5, TSS, and DO limits applied in the two previous permits have been carried forward at this reissuance. The bases for these limits are included in the February 7, 1992 DEQ memo provided in this appendix. During the November 3, 2011 site inspection, no downstream water quality impacts were noted. Wind-induced mixing within the pond was observed, supporting the 1992 evaluation that the pond water is mixed in response to the wind, thus increasing the DO concentration throughout. The pond discharge rate was noticeably higher than the STP discharge rate, suggesting the pond also receives groundwater inflow, which would also contribute to mixing of the pond water. No other water sources were observed flowing into the pond during the inspection. These observations, combined with the fact that the facility routinely operates in compliance with its permit, supports the decision to carry forward the previous BOD_5, TSS, and DO limits.

In addition to historical BOD_5 limits which restrict both the carbonaceous and nitrogenous BOD_5 concentrations in the discharge, the relatively restrictive ammonia-N limits included in the permit will serve to control the effluent TKN concentration. In light of these measures, and the fact that no documented water quality impacts have resulted from this discharge, TKN limits are deemed unnecessary for this discharge.

The TSS limits are consistent with the Secondary Treatment Regulation and the Rivanna River Sediment TMDL WLA of 183 lb/year and have been carried forward from the previous permit.

The pH limits reflect the current WQS for pH in the receiving stream and have been carried forward from the previous permit.

EVALUATION OF THE EFFLUENT – DISINFECTION:
The TRC disinfection requirements have been carried forward from the previous permit. This includes a minimum TRC concentration of 1.5 mg/L after the contact tank based on the PWS designation for the receiving stream. In addition to the minimum TRC contact requirements, E. coli monitoring at a frequency of 4/Month and an associated limit have been included at this reissuance to ensure effective disinfection is achieved and applies regardless of the means of disinfection. The E. coli limits are consistent with the TMDL WLA of 8.69×10^9 cfu/yr and are protective of the current WQS for E. coli in the receiving stream.

EVALUATION OF THE EFFLUENT – NUTRIENTS:
The design flow for this facility prior to July 1, 2005 was 0.005 MGD and remains unchanged at present. Nutrient requirements are not applicable for existing discharges less than 40,000 GPD.

EVALUATION OF THE EFFLUENT – TOXICS:

Discharge: The pH, temperature, and hardness values have been carried forward from the previous fact sheet.

Effluent Information			
90% Annual Temp (°C) =	23.1	90% pH (SU) =	7.4
Mean Hardness (mg/L) =	25	10% pH (SU) =	6.4

Stream: Because the discharge results in the only stream flow during critical low flow periods, ambient stream data for Naked Creek, U.T. is not required for the toxics evaluation. The evaluation is based solely on the effluent characteristics.

WQC and WLAs were calculated for the WQS parameters for which data are available. The resulting WQC and WLAs are presented in this appendix. Current agency guidelines recommends the evaluation of toxic pollutant limits for TRC and Ammonia-N be based on default effluent concentrations of 20 mg/L and 9 mg/L, respectively. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

- TRC: Limits identical to those in the previous permit were determined to be necessary.
- Ammonia-N: Less stringent limits were determined to be necessary at this reissuance. Because there has been no significant change in the effluent since the previous evaluation, the previous seasonal permit limits have been carried forward based on antibacksliding requirements.

WQC-WLA SPREADSHEET INPUT –

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name: Avionics Specialties, Inc.
Receiving Stream: Naked Creek, UT
Permit No.: VA0028398
Date: 1/4/2012
Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information			Stream Flows			Mixing Information			Effluent Information		
Mean Hardness (as CaCO3) =	25	mg/L	1Q10 (Annual) =	0	MGD	Annual	- 1Q10 Flow =	100 %	Mean Hardness (as CaCO3) =	25	mg/L
90% Temperature (Annual) =	23.1	deg C	7Q10 (Annual) =	0	MGD		- 7Q10 Flow =	100 %	90% Temp (Annual) =	23.1	deg C
90% Temperature (Wet season) =		deg C	30Q10 (Annual) =	0	MGD		- 30Q10 Flow =	100 %	90% Temp (Wet season) =		deg C
90% Maximum pH =	7.4	SU	1Q10 (Wet season) =	0	MGD	Wet Season	- 1Q10 Flow =	100 %	90% Maximum pH =	7.4	SU
10% Maximum pH =	6.4	SU	30Q10 (Wet season) =	0	MGD		- 30Q10 Flow =	100 %	10% Maximum pH =	6.4	SU
Tier Designation =	1		30Q5 =	0	MGD				Current Discharge Flow =	0.005	MGD
Public Water Supply (PWS) Y/N? =	Y		Harmonic Mean =	0	MGD				Discharge Flow for Limit Analysis =	0.005	MGD
V(alley) or P(iedmont)? =	V										
Trout Present Y/N? =	N										
Early Life Stages Present Y/N? =	Y										

Footnotes:

1. All concentrations expressed as micrograms/ liter (ug/ l), unless noted otherwise.
2. All flow values are expressed as Million Gallons per Day (MGD).
3. Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
4. Hardness expressed as mg/ l CaCO3. Standards calculated using Hardness values in the range of 25-400 mg/ l CaCO3.
5. "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
6. Carcinogen "Y" indicates carcinogenic parameter.
7. Ammonia WQSs selected from separate tables, based on pH and temperature.
8. Metals measured as Dissolved, unless specified otherwise.
9. WLA = Waste Load Allocation (based on standards).
10. WLA = Waste Load Allocation (based on standards).
11. WLAs are based on mass balances (less background, if data exist).
12. Acute - 1 hour avg. concentration not to be exceeded more than 1/ 3 years.
13. Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/ 3 years.
14. Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
15. Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC-WLA SPREADSHEET OUTPUT –

Facility Name: Avionics Specialties, Inc.
Permit No.: VA0028398
Receiving Stream: Naked Creek, UT
Date: 1/4/2012

WATER QUALITY CRITERIA
0.005 MGD Discharge Flow - Mix per "Mixer"

NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS
0.005 MGD Discharge - Mix per "Mixer"

Toxic Parameter and Form	Carcinogen?	Aquatic Protection Acute	Aquatic Protection Chronic	Human Health Public Water Supplies	Human Health Other Surface Waters	Aquatic Protection Acute	Aquatic Protection Chronic	Human Health
Ammonia-N (Annual)	N	2.3E+01 mg/ L	2.7E+00 mg/ L	None	None	2.3E+01 mg/ L	2.7E+00 mg/ L	N/A
Chlorine, Total Residual	N	1.9E-02 mg/ L	1.1E-02 mg/ L	None	None	1.9E-02 mg/ L	1.1E-02 mg/ L	N/A

PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011. According to this guidance, STPs with a design flow = 0.040 MGD are treated as if there are no toxic pollutants in their discharge unless there is actual evidence to indicate otherwise. This applies to all toxic pollutants with the exception of Ammonia and Total Residual Chlorine, which are evaluated in every STP discharge. Also, these smaller STPs are not required to monitor for any toxic pollutants unless there is reason to believe that such pollutants may be present.

Acute and Chronic WLAs (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh}, the WLA_{hh} was imposed as the limit.

Since the discharge is to a intermittent stream, all upstream (background) pollutant concentrations are assumed to be "0".

The steps used in evaluating available effluent data from STPs with design flows = 0.040 MGD are as follows:

A. If all data are reported as "below detection" or < the required Quantification Level (QL) (or, for metals, in a form other than "dissolved"), then the data are not suitable for analysis and no further monitoring is required.

B. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.

B.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.

B.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.

Parameter	CASRN	QL	Data	Source of Data	Data Eval
Ammonia-N (mg/L) (Annual)	766-41-7	0.2 mg/L	**Default = 9 mg/L**	**a**	**B.2**
TRC (mg/L)	7782-50-5	0.1 mg/L	**Default = 20 mg/L**	**a**	**B.2**

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

"Source of Data" codes:
a = default effluent concentration

"Data Evaluation" codes:
See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

STAT.EXE RESULTS

Chemical = Ammonia-N (Annual)
Chronic averaging period = 30
WLAa = 23
WLAc = 2.7
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.44770925222404
Average Weekly Limit = 5.44770925222404
Average Monthly Limit = 5.44770925222404

The data are: 9

Chemical = TRC
Chronic averaging period = 4
WLAa = 0.019
WLAc = 0.011
Q.L. = 0.1
# samples/mo. = 30
# samples/wk. = 7

Summary of Statistics:

observations = 1
Expected Value = 20
Variance = 144
C.V. = 0.6
97th percentile daily values = 48.6683
97th percentile 4 day average = 33.2758
97th percentile 30 day average= 24.1210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 1.60883226245855E-02
Average Weekly Limit = 9.8252545713861E-03
Average Monthly Limit = 7.9737131838758E-03

The data are: 20

DEQ MEMO ADDRESSING BOD_5, TSS, & DO LIMITATIONS

MEMORANDUM

VIRGINIA WATER CONTROL BOARD

Valley Regional Office

116 North Main St. - P.O. Box 268 Bridgewater, VA 22812

SUBJECT: Reissuance of VPDES Permit No. VA0028398, Teledyne Avionics STP, Albemarle County, Site Inspection Report and Modeling Rationale

TO: VRO File

FROM: Vance Neal, VRO Neal

DATE: February 7, 1992

COPIES:

On January 16, 1992 the permit writer inspected the above mentioned site. The writer met F. R. Lentzsch, the Human Resources Director, and Milford W. Shifflett, the STP operator at the facility.

This facility discharges into a dry ditch which is an unnamed tributary to Naked Creek and has been dammed since the original issuance to create a pond. The drainage area to the pond is measured from the attached USGS Topographic Map 173B to be 0.043 square miles; thus the facility's discharge (design flow = 5000 gallons per day) is the main source of water to the pond. The pond begins about 200 feet below the STP discharge point and is estimated to have the following dimensions:

Length = 100 feet
Width = 150 feet
Maximum depth = 8 feet
Average depth = 3 feet
Pond Volume = 100 ft * 150 ft * 3 ft = 45,000 cu. ft.
= 45,000 cu. ft. * 7.48 gal/cu. ft. = 334,000 gallons

The retention time of water entering the pond during 7Q10 low flow conditions is estimated to be:

7Q10 of receiving ditch = 0.0 gallons/day
STP design flow = 5,000 gal/day
Pond Volume = 334,000 gallons
Retention time through pond = 334,000 gal/ 5,000 gal/day = 67 days

The retention time through the pond is estimated to be 67 days, the effects of which cannot be assessed with our present SWCB models. The pond acts as a lake with respect to the small flow going into it and is a fairly complex system. The shallow depth (less than 15 feet deep) of

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the pond indicates that wind action will continually mix the whole pond instead of just two annual turn overs of water associated with deeper thermally stratified lakes. The mixing of the water will help increase the dissolved oxygen levels at the pond bottom. During the site visit the writer observed no environmental impacts caused by the facility's discharge to the pond, nor are there any file records of water quality problems due to this discharge.

When this permit was first issued the facility's discharge traveled 2.3 miles down stream before it entered into an impoundment. The original model of August 7, 1974 is no longer reflective of the present conditions because of the new impoundment. The limits set by the August 7, 1974 model and are still in the facility's permit and are:

BOD_5 = 11.5 mg/L rounded to 12 mg/L
TSS = 11.5 mg/L rounded to 12 mg/L
Flow = 0.005 MGD
D.O. = 6.12 mg/L rounded to 6.0 mg/L

A conference phone call with Dale Phillips, the OWRM modeler, Keith Fowler, VRO staff, and the writer discussed this situation on February 6, 1992 and we concluded that the present SWCB stream model is not appropriate for this situation. The current effluent limitations will be maintained in this reissuance since they are already reflective of a high-quality effluent and there is no evidence of any downstream water quality impacts.

APPENDIX C

BASES FOR PERMIT SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page	• Content and format as prescribed by the VPDES Permit Manual.
Part I.A.1.	**Effluent Limitations and Monitoring Requirements:** *Updates Part I.A.1. of the previous permit with the following*: • E. coli monitoring and limits were added based on the Rivanna River Bacteria TMDL
Part I.B.	**Additional TRC Limitations and Monitoring Requirements:** *Updates Part I.B. of the previous permit.* Required by Sewage Collection and Treatment (SCAT) Regulations and 9 VAC 25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.
Part I.C.	**Effluent Limitations and Monitoring Requirements – Additional Instructions:** *Updates Part I.C. of the previous permit*. The QL for BOD_5 was changed from 5 mg/L to 2 mg/L. Authorized by VPDES Permit Regulation, 9 VAC 25-31-190.J.4 and 220.I. This condition is necessary when a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.
Part I.D.1.	**95% Capacity Reopener:** *Identical to Part I.D.1. of the previous permit*. Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 4 for certain permits.
Part I.D.2	**Indirect Dischargers:** *Identical to Part I.D.2. of the previous permit.* Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 for all STPs that receive waste from someone other than the owner of the treatment works.
Part I.D.3.	**Materials Handling/Storage:** *Identical to Part I.D.3. of the previous permit***.** 9 VAC 25-31-280.B.2. requires that the types and quantities of "wastes, fluids, or pollutants which are … treated, stored, etc." be addressed for all permitted facilities.
Part I.D.4.	**O&M Manual Requirement:** *Updates Part I.D.4. of the previous permit.* Required by Code of Virginia 62.1-44.19, SCAT Regulations 9 VAC 25-790, and VPDES Permit Regulation 9 VAC 25-31-190 E for all STPs. Added requirement to describe procedures for documenting compliance with the permit requirement that there shall be no discharge of floating solids or visible foam in other than trace amounts.
Part I.D.5.	**CTC/CTO Requirement:** *Identical to Part I.D.5. of the previous permit.* Required by Code of Virginia 62.1-44.19, SCAT Regulations 9 VAC 25-790, and VPDES Permit Regulation 9 VAC 25-31-190 E for all STPs.
Part I.D.6.	**SMP Requirement:** *Identical to Part I.D.7. of the previous permit.* VPDES Permit Regulation 9 VAC 25-31-100 P, 220 B 2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9 VAC 25-32-10 et seq.)
Part I.D.7.	**Licensed Operator Requirement:** *Identical to Part I.D.8. of the previous permit.* The VPDES Permit Regulation 9 VAC 25-31-200 C, the Code of Virginia 54.1-2300 et seq., and Rules and Regulations for Waterworks and Wastewater Works Operators 18 VAC 160-20-10 et seq., require licensure of operators.

Part I.D.8. **Reliability Class:** *Identical to Part I.D.9. of the previous permit.* Required by SCAT Regulations 9 VAC 25-790.

Part I.D.9. **Treatment Works Closure Plan:** *Identical to Part I.D.10. of the previous permit.* Required for all STPs per the State Water Control Law at 62.1-44.18.C. and 62.1-44.15:1.1., and the SCAT Regulations at 9 VAC 25-790-450.E.. and 9 VAC 25-790-120.E.3.

Part I.D.10. **Reopeners:**
a. **TMDL Reopener:** *Updates Part I.D.12. of the previous permit:* Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.
b. **Chesapeake Bay Nutrients Reopener:** *Updates Part I.D.11. of the previous permit:* 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
c. **Sludge Reopener:** *Updates Part I.D.6. of the previous permit:* Required by the VPDES Permit Regulation, 9 VAC 25-31-220.C, for all permits issued to STPs.

Part II **Conditions Applicable to All VPDES Permits:** *Updates Part II of previous permit.* VPDES Permit Regulation 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed. Part II,A.4. language added for Virginia Environmental Laboratory Accreditation Program (VELAP) per 1 VAC 30, Chapter 45: Certification for Noncommercial Environmental Laboratories, and 1 VAC 30, Chapter 46: Accreditation for Commercial Laboratories.

DELETIONS

Tabulated below are the sections of the previous permit that were deleted and the basis for this action.

None